**Q. Newfoundland Power's 2023 capital budget application, Tab 2023 Capital Budget Overview, Appendix B, page 3, lists various projects that were deferred from 2023 to subsequent years and includes Memorial Substation Refurbishment and Modernization. Newfoundland Power states that "Memorial Substation located at Memorial University in St. John's requires refurbishment and modernization to replace deteriorated equipment. The project was originally planned for 2023. The project has been deferred to allow further engineering assessment of the components in the substation and to coordinate with work planned by Memorial University on the equipment it owns in the substation. The project is now planned for 2024."**

**(a) Was MUN-T2 being considered for replacement as part of the above?**

**(b) What impact, if any, did the deferral of this project have upon the timing of the discovery of the issue with MUN-T2?**

A. (a) No, the replacement of power transformer MUN-T2 was not included as part of the planned refurbishment and modernization of Memorial ("MUN") Substation. The planned scope of work for MUN Substation focused on the refurbishment and modernization of certain infrastructure and to coordinate with work planned by Memorial University for replacement of its switchgear.

(b) Deferring the refurbishment and modernization of MUN Substation did not impact the timing of discovering the issue with MUN-T2.

Newfoundland Power determined in the first quarter of 2022 that the refurbishment and modernization of MUN Substation should be deferred from 2023 to 2024. This decision was made to permit further engineering assessments to coordinate with work planned by Memorial University. Preliminary engineering assessments completed in the first quarter of 2022 did not identify any issues with MUN-T2. This is because oil samples collected in February 2022 appeared normal.

In August 2022, only six months following the latest oil sampling, Newfoundland Power was notified by Memorial University that MUN-T2 was producing a high noise level during operation and was experiencing a higher than normal internal temperature. Additional oil sampling was completed and, while the sample appeared dark in colour, laboratory analysis showed the results again appeared normal. This necessitated an internal inspection and an assessment by an independent consultant to diagnose the specific failure mode.[1]

Engineering assessments for substation refurbishment and modernization projects generally rely on standard maintenance procedures to identify issues with power transformers. Internal inspections are rare and are typically completed to

[1] See the *Application*, *Schedule B*, *Section 2.0 Background*.

diagnose a suspected failure.[2] In the case of MUN-T2, an internal inspection was deemed necessary based on the abnormal noise and temperature levels that materialized in August 2022. Without these operational concerns, an internal inspection would not have been completed and a standard engineering assessment would not have detected the deterioration.

[2] An internal inspection requires de-energizing the power transformer and partially draining the oil. The results of the inspection may or may not reveal the issue, depending on what the issue is and where it originates within the transformer. If an internal inspection does not identify the issue, a full dismantling of the power transformer may be required.